virus (HSV) type 1. In this study, a metabolomic investigation of the *Helichrysum* species was undertaken, to establish which active constituents are responsible for anti-HSV activity. The cytotoxicity of 12 *Helichrysum* species was investigated and the IC_{50} values ranged from <3.125 µg/ml to 277.8 µg/ml. In addition, the bioassay results on HSV-1 will be used to determine correlations with nuclear magnetic resonance and multivariate data analyses to predict which constituents are responsible for the anti-HSV activity. *Helichrysum* species that show anti-HSV activity are hypothesised to have the same constituent or group of constituents responsible for the activity. These constituents should have distinctive grouping patterns that will be observed when using the principle component analyses plots. The constituent(s) responsible for the grouping (s) will then be further investigated.

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Plant growth promoting substances

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Numerous compounds exist in nature which, although not falling into any of the traditional plant hormone categories, are able to influence plant growth. These include substances produced by bacteria, fungi and other plants, such as lumichrome, alkamides, volatile organic compounds, fulvic acid and plant-derived smoke. Unlike the traditional plant hormones, very little is known about their modes of action at either the physiological or the molecular levels. We are currently investigating the effects of several of these compounds on model plant species such as *Arabidopsis thaliana*, *Lotus japonicus* and *Nicotiana benthamiana*. The considerable genetic resources available for these plants will be of benefit in trying to analyse the mechanisms by which these growth promoting substances exert their effect on the plant. Plant growth promoting substances such as these have been shown to affect a wide variety of plants, including several economically and agriculturally-important species. If the mechanisms that result in increased plant growth can be elucidated and understood, it may be possible to genetically modify crop plants for increased productivity and yield.

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Edge effects on plant composition and functional type distribution in renosterveld fragments of the Tygerberg

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For the definition of meaningful conservation strategies in fragmented areas it is important to establish the extent of edge effects, both for potential prioritization of conservation targets as well as for the establishment of stepping stones or corridor width to conserve matrix plant species and the animal species dependant on them. In this context, we examined ten edge to centre gradients on five renosterveld fragments in the Tygerberg up to a distance of 200 m into the fragment. We found a high species turnover among common shrubby species levelling of at about 50 m, with the four most dominant species showing little to now effect to distance from the edge. Understorey species and functional composition are still under investigation. Preliminary results from our work therefore suggest that all fragments over 100 m diameter are of particularly high importance for conservation and that stepping stones and corridors should be over a 100 m wide to ensure continued survival and mobility of all matrix species.

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The leaf anatomy of ethnobotanically important *Pteronia* species

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The name of the San people is thought to be derived from the original Khoi name for *Pteronia onobromoides* (Asteraceae), namely *Son* (singular) and *San* (plural). Curiously, almost nothing is known about the biology, chemistry and traditional uses of *Pteronia* species. The name “boegoe” usually refers specifically to *Agathosma betulina* (Rutaceae) but may also be applied to certain *Pteronia* species and many other aromatic plants. According to Marloth, the Buchuberg derived its name from aromatic plants known as “buchu or bookoo”, such as *P. onobromoides*. *Agathosma* species have many medicinal uses and are widely used as general health tonics in South Africa. A summary of all known ethnobotanical information on southern African *Pteronia* species is provided. The leaf anatomy of *Pteronia onobromoides* and *P. camphorata* was studied and compared with that of *Agathosma betulina* with special emphasis on the oil glands. Transverse sections of the leaves show that the structure of the oil glands is similar in all species but that the two genera can be distinguished by the position of these glands. They are found below some of the vascular bundles close to the phloem in the *Pteronia* species but in *Agathosma* they occur nearer the outside surface of the leaves with larger glands that occur adjacent to the leaf margin. Leaves of the two genera can also be readily